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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,494	11/06/2001	Kazuo Kobayashi	P6121a	7990

20178 7590 10/04/2005  
EPSON RESEARCH AND DEVELOPMENT INC  
INTELLECTUAL PROPERTY DEPT  
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SAN JOSE, CA 95134

EXAMINER
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SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2677

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/005,494		KOBAYASHI, KAZUO	
	<b>Examiner</b>		<b>Art Unit</b>	
	Leonid Shapiro		2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingo (JP 11-149278) in view of Furukawa (US Patent No. 6,040,826) and Isozaki (US Patent No. 5,576,737).

As to claims 1 and 8, Shingo teaches a display driver apparatus and a method for driving a display comprising a plurality of pixels, each of which is located at a respective one of a plurality of intersections formed by an arrangement of a plurality of common electrodes (240 scanning lines) positioned generally parallel to one another and extending in a first direction and one of a plurality of segment electrodes (320 signal lines) positioned generally parallel to one another and extending in a second direction, wherein an orientation state of an electro-optical material of each pixel is controlled by a voltage applied to it (See Drawing 1, item 10, in Detailed Description See paragraph 0007), the display driver apparatus comprising:

a common electrode drive device (scanning line driver 30) that supplies a scanning signal for simultaneously selecting L (4) common (scanning) electrodes, where L is natural number and  $L \geq 2$  (display could not be made with one scanning

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electrode) (See Drawing 1, item 30, 32, in Detailed Description See paragraphs 0010 and Drawing 3A, item 1-4, in Detailed Description See paragraphs 0029);

a segment electrode drive device (signal-line driver) that supplies a data signal to each of the plurality of segment (signal) electrodes (See Drawing 1, item 20, in Detailed Description See paragraph 0008);

a storage medium from which N-bit display data are simultaneously read out for the L pixels at the respective L intersections that each of the plurality of segment (signal) electrodes form with the L common electrodes that are simultaneously selected (See Drawing 2, item 100, in Detailed Description See paragraphs 0012-0013);

a decoder circuit having a plurality of sub-decoders and that divides the N(8)-bit display data simultaneously read out from the storage medium into (N/L=8/4=2)-bit data units, decodes the (N/L=8/4=2)-bit data units, and outputs a voltage to be applied to each of segment (signal) electrodes (See Drawings 4-5, item 134, in Detailed Description See paragraphs 0034, 0036);

wherein

in a first mode, the N=8-bit display data provides  $2^2=4$  display gradients for each of L=4 pixels on each of the segment (signal) electrodes, and an output voltage is output from selected one of sub-decoders in each of A divided periods of one horizontal scanning period (See Drawings 6,7B, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038);

in a second mode, the N=8-bit display data provides  $2=2$  display gradients for each of L=4 pixels on each of the segment (signal) electrodes, and an

output voltage is output from a selected one of the subdecoders every  $n=2$  horizontal scanning periods (See Drawings 6,7A, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038).

Furthermore, the Shingo apparatus is capable of operating in first and second modes as claimed since parameters of Shingo apparatus ( $N=8$ ,  $L=4$ ,  $n=2$ ) will satisfy both formulas  $A = 2$  and  $B = A/n = 1$  and description of both modes operation.

Shingo does not show the storage medium including a memory address space in which the display data is organized according to the groups of  $L$  pixels and bit positions for pixels in particular groups.

Furukawa teaches the storage medium including a memory address space in which the display data is organized according to the groups of  $L$  (4) pixels and bit positions for pixels in particular groups (See Fig. 5, items 21-24, Col. 11, Lines 8-40).

It would have been obvious to one of ordinary skill in the art to add Furukawa memory address space organization into Shingo system because it will allow to select as many buffers as scanning lines in accordance with a multiple-scanning line simultaneous selection method (See Col. 4, Lines 44-47 in the Furukawa reference).

Shingo and Furukawa do not disclose single display data RAM.

Isozaki teaches single display data RAM for use with multiple line selection drive method.

It would have been obvious to one of ordinary skill in the art to incorporate teaching of Isozaki into Shingo and Furukawa system in order to use single RAM (See Col. 1, Lines 8-10 in the Isozaki reference).

As to claim 2, Shingo teaches a terminal that selects the first mode or second mode (See Drawing 6, item G/D, in Detailed Description See paragraph 0036).

As to claims 3, 9, Shingo teaches an interface circuit for inputting the N-bit display data from an external source, wherein a mode selection signal for selecting the first mode or the second mode is input through the interface circuit (See Drawing 2, items D0-D7, G/D).

As to claims 4, 10, Shingo teaches a first mode the N-bit display data provides four display gradients for each of L pixels on each of the segment (signal) electrode (See Drawing 7B, in Detailed Description See paragraphs 0036-0038).

As to claims 5, 11, Shingo teaches a second mode the N-bit display data provides two display gradients for each of 2L pixels on each of the segment (signal) electrode (See Drawing 7B, in Detailed Description See paragraphs 0036-0038).

As to claims 6, 7, Shingo teaches an electronic device and electro-optical device comprising a display driver apparatus (See Drawing 1, items 20, 30, in Detailed Description See paragraphs 0001-0002).

As to claims 12-13, Shingo teaches data is organized according to the groups of pixels, and within a particular group according to upper and lower bit positions for pixels in that group (See Fig. 5, items 21-24, Col. 11, Lines 37-40).

***Response to Amendment***

2. Applicant's arguments filed on 07.12.05 with respect to claims 1-13 have been considered fully considered and are persuasive but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Telephone inquire***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LS  
09.26.05

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, flowing script.

**VIJAY SHANKAR**  
**PRIMARY EXAMINER**